University of Oxford

Department of Political Science and International Relations

Experimental Methods
2017 Trinity Term

Centre for Experimental Social Sciences
Nuffield College, University of Oxford

Course Objectives
The course covers the design, implementation, and analytic tools necessary for conducting social science experiments and analysing experimental data. Module 1, that occurs during Weeks 1 through 4 of Trinity Term, will focus on laboratory, online and field experiments. The module begins in Week 1 with an introduction to experimental designs, causal inference, and a review of recent topics in experimental social sciences. Weeks 2 and 3 will cover topics of causal inference and experimental approaches to data analysis. Week 4 focuses on field, lab-in-the-field, and online experiments. During Module 1, there will be optional introduction to R programming classes.

In Module 2, occurring in Weeks 5 through 8 of Trinity Term, participants will learn how to program experiments with z-Tree, work with the subject recruitment software, analyse experimental data and run a lab experiment at the Nuffield Centre for Experimental Social Sciences (CESS). In addition, participants will learn how to programme online experiments in Qualtrics and how to work with crowd-sourced subject pools.

Participants will have the opportunity to present their own experimental research and receive feedback from an experienced team of instructors. Upon completion of the course participants should be able to (1) formulate research questions that can be addressed using experiments, (2) design and carry out experiments, and (3) analyse and interpret results from social sciences experiments.

The course is appropriate for participants from any discipline who expect to include experimental social research as part of their research agenda. It is also appropriate for participants who want to become informed consumers of experimental research scholarship.

Course Prerequisites
Participants should have a basic background in research design and statistics. For example, with respect to research design, they should understand basic concepts such as exogeneity, control group, and confounding effects. With respect to basic statistics, they should understand the principals of ordinary least squares regression; how to calculate simple measures of association; and have some familiarity with a statistical software package. The hands-on experimental data analysis lab sessions will use R.

Course Location
Course lectures will be held in Nuffield College Large Lecture Room (LLR) and lab sessions will be held at the CESS Lab.

Course Schedule
Lectures take place on each Tuesday of Trinity Term at 16:30. The course is organised into two modules. Module 1 takes place during Weeks 1 through 4 of Trinity Term. A second, optional, Module 2 will be available to interested students and it will take place during Weeks 5 through

8 of Trinity Term. The first module will focus on experimental design and methods. The second module will provide students with instruction in z-Tree and Qualtrics programming – these are programming skills that are helpful for programming lab and online experiments.

Module 1				
Day	Time	Place	Topic	Instructor
25 April	16:30 - 18:30	LLR	Causal inference and experimental design	rd
2 May	16:30 - 18:30	LLR	Using Covariates and Experimental Inference	rd
	18:30 - 19:30	LLR	G&G Exercise Using R (ex3.4, 3.6)	se
9 May	16:30 - 18:30	LLR	Non-Compliance, Power and Mediation	rd
	18:30 - 19:30	LLR	G&G Exercise Using R (ex4.2, 4.9)	se
16 May	16:30 - 18:30	LLR	Field, Lab-in-the-Field & Online Experiments	rd
	18:30 - 19:30	LLR	G&G Exercise Using R (ex5.8, 5.10)	se
Module 2				
Day	Time	Place	Topic	Instructor
23 May	16:30 - 18:30	CL	Implementing and Conducting Experiments	jj
30 May	16:30 - 18:30	CL	Programming with Z-TREE I: Basic Elements	jj
	18:30 - 19:30	CL	Programming Online Survey Experiment in Qualtrics	se
6 June	16:30 - 18:30	CL	Programming with Z-TREE II: Interaction	jj
	18:30 - 19:30	CL	Programming Online Survey Experiment in Qualtrics	se
13 June	16:00 - 18:30	CL	Programming with Z-TREE III: Advanced Programming	jj

CL: CESS Lab; LLR Nuffield Large Lecture Room
rd: Ray Duch; am: Sonke Ehret; jj: John Jensenius

Instructors

Raymond Duch
: Official Fellow of Nuffield College and Director of CESS
Research interests: Comparative political economy, political behaviour, experimental methods

John Jensenius
: Postdoctoral Researcher and Assistant to the Director of CESS
Research interests: Experimental social science, behavioural economics, public economics, industrial organisation

Sonke Ehret
: Research Officer at Nuffield College CESS Research interests: Online experiments, quantitative methods

Reading lists

Week 1: Causal inference and experimental design

Background

- Joshua D. Angrist & Jorn-Steffen Pischke, *Mastering Metrics* Chapters 1-3.
- Morgan, Stephen L. and Christopher Winship. 2007. *Counterfactuals and Causal Inference: Methods and Principles for Social Research.* Cambridge (MA): Cambridge University Press. (Ch. 1 & 2)

Core Readings

- Gerber and Green *Field Experiments: Design, Analysis, and Interpretation*
  - Chapters 1 & 2
  - R scripts and data sets used in the book http://isps.yale.edu/FEDAI
- Kosuke Imai *Quantitative Social Science: An Introduction*
  - Chapters 2
  - R scripts and data sets: https://github.com/kosukeimai/qss

Article Illustrations

- Bertrand, Marianne and Sendhil Mullainathan. 2004. "Are Emily and Greg More Employable than Lakisah and Jamal: A Field Experiment on Labor Market Discrimination" The American Economics Review. 94: 991-1013.
  - Chapters 1 & 2
  - R scripts and data sets: https://github.com/kosukeimai/qss
- Chattopadhyay Raghabendra and Esther Duflo. 2004. "Women as Policy Makers: Evidence from a Randomized Policy Experiment in India." Econometrica, 72(5):1409-1443.
  - Chapters 1 & 2
  - R scripts and data sets: https://github.com/kosukeimai/qss
- Gerber, Alan S., Donald P. Green, and Christopher Larimer. 2008. "Social Pressure and Voter Turnout: Evidence from a Large-Scale Field Experiment." American Political Science Review. 102(1): 33-48.
  - R scripts and data sets: https://github.com/kosukeimai/qss
- Gerber, Alan S. and Donald P. Green. 2000. "The Effects of Canvassing, Telephone Calls, and Direct Mail on Voter Turnout: A Field Experiment." American Political Science Review. 94(3): 653-663.
  - R scripts and data sets: http://isps.yale.edu/FEDAI

Week 2: Uncertainty, Hypothesis Testing, Regression, Covariates, Experimental Inference & Power

Core Readings

- Gerber and Green *Field Experiments: Design, Analysis, and Interpretation*
  - Chapters 3 & 4
  - R scripts and data sets used in the book http://isps.yale.edu/FEDAI

  - Kosuke Imai *Quantitative Social Science: An Introduction*
    * Chapters 4 & 7
    * R scripts and data sets: https://github.com/kosukeimai/qss

  Article Illustrations

  - Ana de la O. 2013. "Do Conditional Cash Transfers Affect Voting Behavior? Evidence from a Randomized Experiment in Mexico." American Journal of Political Science. 57(1): 1-14.
    * R scripts and data sets: https://github.com/kosukeimai/qss
  - Imai, Kosuke, Gary King and Carlos Velasco. 2015. "Do Nonpartisan Programmatic Policies Have Partisan Electoral Effects? Evidence from Two Large Scale Randomized Experiments." Working Paper.
    * R scripts and data sets: https://github.com/kosukeimai/qss
  - Clingingsmith, David, Asim Ijaz Khwaja, and Michael R. Kremer. 2009. "Estimating the impact of the Hajj: Religion and tolerance in Islam's global gathering." Quarterly Journal of Economics 124(3):1133-1170.
    * R scripts and data sets: http://isps.yale.edu/FEDAI

Week 3: Non-Compliance, Attrition, and Mediation

- Gerber and Green *Field Experiments: Design, Analysis, and Interpretation*
  - Chapters 5, 6, 7 & 10
  - R scripts and data sets used in the book http://isps.yale.edu/FEDAI

Week 4: Field, Lab-in-the-Field & Online Experiments

The lectures for Week 4 will be drawn from a variety of different sources – mainly recently published articles. These are listed below:

Readings

- Arceneaux, Kevin. 2005. "Using Cluster Randomised Field Experiments to Study Voting Behavior" The Annals of the American Academy of Political and Social Science 601: 169-179.
- Bertrand, Marianne and Sendhil Mullainathan. 2004. "Are Emily and Greg More Employable than Lakisah and Jamal: A Field Experiment on Labor Market Discrimination" The American Economics Review. 94: 991-1013.
- Robert M. Bond et al. 2012. "A 610-million-person Experiment in Social Influence and Political Mobilization" Nature. September, 2012. Letter.
- Gerber, Alan S. and Donald P. Green. 2000. "The Effects of Canvassing Telephone Calls, and Direct Mail on Voter Turnout: A Field Experiment." The American Political Science Review. 94: 653-663.

- Muralidkharan, Krthik and Venkatesh Sundararaman. 2011. “Teacher Performance Pay: Experimental Evidence from India." Journal of Political Economy. 119: 39-77.
- Nickerson, David W. 2005. “Scalable Protocols Offer Efficient Designs for Field Experiments." Political Analysis. 13: 233-252.
- Nickerson, David W. 2008. “Is Voting Contagious? Evidence from Two Field Experiments." The American Political Science Review. 102: 49-57.

Survey Experiments

- Mutz, Diana C. 2011 “Population-Based Survey Experiments.” Princeton University Press.

Survey Experiments on Social Media

- Grimmer, Justin, Solomon Messing, and Sean Westwood. 2012. “How Words and Money Cultivate a Personal Vote: The Effect of Legislator Credit Claiming on Constituent Credit Allocation.” *American Political Science Review.* 106(4).
- Samuels, David and Cesar Zucco. 2012. “Using Facebook as a Subject Recruitment Tool for Survey Experimental Research.” Manuscript.

Experiments with crowd sourced subjects

- Adam Berinsky, Gregory Huber, and Gabriel Lenz. 2012. “Evaluating Online Labor Markets for Experimental Research: Amazon.com’s Mechanical Turk.” Political Analysis, 20(3), 351-368.
- Gabriele Paolacci. “Handle with Care: Opportunities and Threats of Amazon Mechanical Turk Experimentation.” Manuscript.
- Pablo Beramendi, Raymond M. Duch, and Akitaka Matsuo. 2015. "When Lab Subjects Meet Real People: Comparing Different Modes of Experiments." Paper presented at the Asian Political Methodology Society Meetings, Taiwan 2015.
- Daniel Goldstein, Siddharth Suri, R. Preston McAfee, Matthew Ekstrand-Abueg, and Fernando Diaz. 2014. "The Economic and Cognitive Costs of Annoying Display Advertisements" *Journal of Marketing Research* LI: 742-752.

Randomisation and Heterogeneous Effects

- Horiuchi, Yusaku, Kosuke Imai, and Naoko Taniguchi. 2007. “Designing and Analyzing Random Experiments: Application to a Japanese Election Survey Experiment.” *American Journal of Political Science.* 51(3): 669-687.
- Ryan T. Moore and Sally A. Moore. 2013. "Blocking for Sequential Political Experiments." *Political Analysis.* 21: 507-523.
- Ryan T. Moore. 2012. "Multivariate Continuous to Improve Political Science Experiments." *Political Analysis.* 20: 460-479.

Conjoint Experiments

- Jens Hainmueller and Daniel Hopkins. 2014. “The Hidden American Immigration Consensus: A Conjoint Analysis of Attitudes toward Immigrants.” American Journal of Political Science, EarlyView.
- Jens Hainmueller, Daniel Hopkins, and Teppei Yamamoto. 2013. "Causal Inference in Conjoint Analysis: Understanding Multidimensional Choices via Stated Preference Experiments" *Political Analysis*
- Clayton Nail and Jonathan Mummolo. 2015. "Why Partisans Don’t Sort: The Constraints on Political Segregation." mimeograph.

List Experiments

- Graeme Blair and Kosuke Imai. 2012. "Statistical Analysis of List Experiments" *Political Analysis* 20: 47-77.
- Graeme Blair, Kosuke Imai, and Jason Lyall. 2014. "Comparing and Combining List and Endorsement Experiments: Evidence from Afghanistan." *American Journal of Political Science.* 58(4): 1043-1063.
- Koske Imai, Bethany Park, and Kenneth Greene. 2014. "Using the Predicted Responses from List Experiments as Explanatory Variables in Regression Models" *Political Analysis* 1-17.

Programming online experiments

- Duckett, Jon. 2011. HTML and CSS: Design and Build Websites. Weily.
- McFarland, David Sawyer. 2011. Javascript and jQuery: A Missing Manual. Rogue Press.
- Qualtrics, Basic Building: https://qualtrics.com/university/researchsuite/basic-building/
- Timothy Brady, Mechanical Turk Tutorial: http://timbrady.org/ttt/index.html